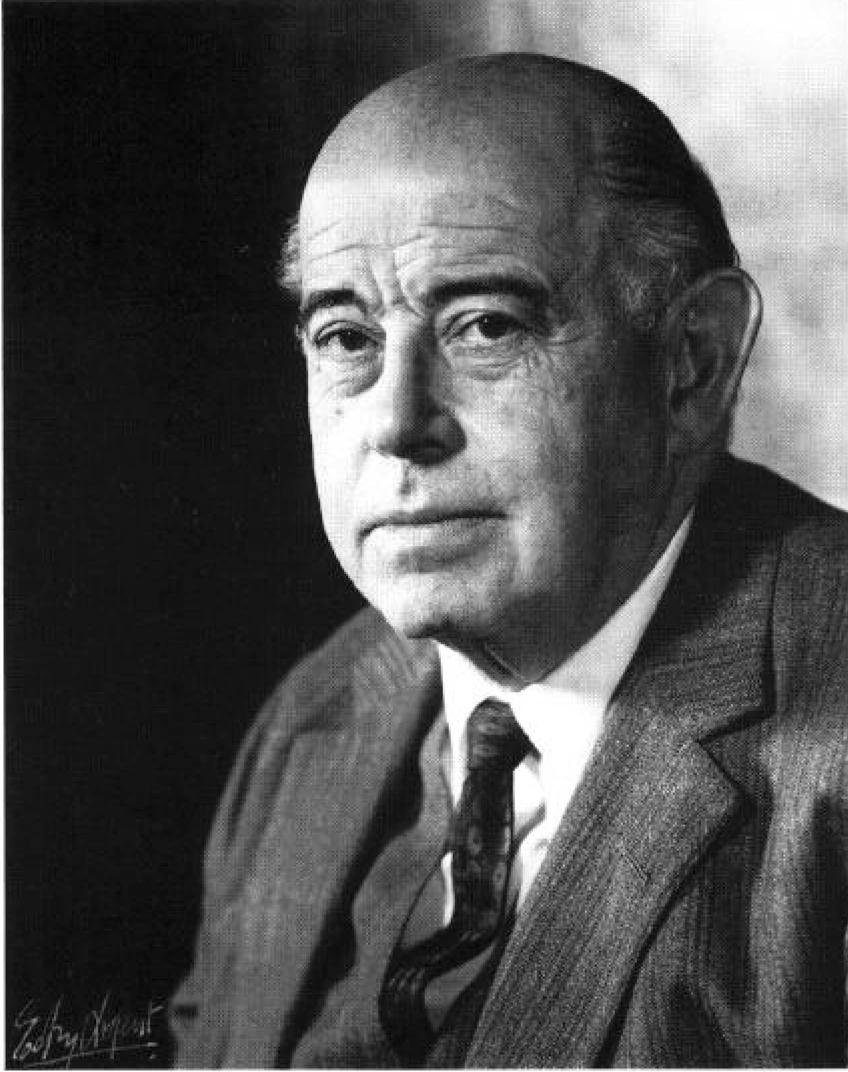

N. KALDOR

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NICHOLAS KALDOR*

1908–1986

Introduction

Professor Lord Kaldor, who was elected a Fellow of the Academy in 1963, and who gave the Academy's Keynes Lecture in 1982,[1] died at Papworth Hospital near Cambridge on 30 September 1986, aged 78. He was one of the most distinguished economists of the twentieth century, who will be recorded in the history of economic thought as a brilliant theoretician and applied economist, surpassed in originality only by Keynes and Harrod among British economists this century. He was a dominant influence in economic debates on the world stage for over fifty years, and hardly a branch of economics escaped his pen. At the London School of Economics (LSE) in the 1930s, while still in his twenties, he emerged as one of the country's leading economic theoreticians making fundamental contributions to controversies in the theory of the firm and in capital theory; to trade cycle theory and welfare economics, and to Keynesian economics by 'generalizing' Keynes's *General Theory*, which nearly fifty years later led Sir John Hicks to remark: 'I think that your (1939) paper was the culmination of the Keynesian revolution in *theory*. You ought to have had more honour for it.'[2] His reputation was such that in 1938, and still only thirty, he was offered a Chair by the prestigious University of Laussane—the home of Walras and Pareto—which he reluctantly declined. Keynes thought extremely highly of him. In a letter to Jesus College, Cambridge in 1943 suggesting Kaldor as an Economics Fellow, Keynes wrote: 'I put him very high among the younger economists in the country. ... He is of the calibre which would

* This memoir draws heavily on my book, *Nicholas Kaldor* (Brighton: Wheatsheaf Books Ltd., 1987). I am very grateful to Dr G. Harcourt for helpful comments on an early draft of the memoir and to Mrs Kit Jones for correcting one or two historical errors.

[1] *Limitations of the General Theory* (OUP, 1983).

[2] Letter dated 20 May 1986. He was referring to 'Speculation and Economic Stability', *Review of Economic Studies*, October 1939.

justify the immediate election to a Readership. ... He is a brilliant talker and one of the most attractive people about the place.'[3] The influence of Keynes, and the exigencies of the Second World War, turned Kaldor into one of the country's leading applied economists, and he continued to mix theoretical and applied analysis thereafter. In the early 1950s as a member of the Royal Commission on the Taxation of Profits and Income, he became one of the world's leading experts on tax theory and policy, writing, amongst other things, a minor classic on the case for an expenditure tax.[4] At the same time, he was the joint architect, with Joan Robinson and Richard Kahn, of the post-Keynesian school of economics which extended Keynesian modes of thought to the analysis of growth and distribution, challenging the prevailing neo-classical orthodoxy of the determinants of long-run steady growth and distributive shares based on factor substitution and marginal productivity pricing. Kaldor's original models of growth and distribution, designed to explain the 'stylized facts' of mature capitalist economies, with their stress on the primacy of the investment decision and embodied technical progress, generated an enormous secondary literature, as did his later thinking on the applied economics of growth, with his stress on the importance of the manufacturing sector as the source of increasing returns. He was highly critical of neo-classical value theory, or what he called equilibrium theory, with its basic assumption of non-increasing returns in all activities. Kaldor did not believe it was possible to understand the growth and development process within countries, or between countries in the world economy, without a two-sector model distinguishing between diminishing returns (primarily land-based) activities on the one hand and increasing returns (primarily industrial) activities on the other. The full implications of his novel thinking in this respect have still to be worked out. Finally, in his last years, he was to lead the intellectual assault on the doctrine of monetarism.

Kaldor lived life to the full both as a professional economist and as a family man. He was passionately interested in the world around him, and in the plight of his fellow men, and how the art and practice of economics could make the world a more agreeable and civilized place in which to live. His belief in a fairer distribution of income and wealth in society, and an intolerance

[3] Letter to Eustace Tillyard, 25 June 1943.

[4] *An Expenditure Tax* (London: Allen and Unwin, 1955).

of injustice, made him a life-long socialist. He indulged no hobbies such as music, gardening, or collecting; he preferred to occupy his time embroiled in economic problems and ideas that intrigued and perplexed him at both the theoretical and policy level. As a devisor of ingenious schemes, he had no equal; 'the last great innovator' as Professor Ken Galbraith once described him. His view of economics as a moral science—as a branch of ethics in the Cambridge tradition—motivated much of his writing, and led him into policy making at the highest level as a Special Adviser to three British (Labour) Chancellors of the Exchequer, and as an adviser to several developing countries.

He did have financial interests which absorbed a lot of his time. He came from a well-to-do family and he married into wealth. In 1959 he joined with Ralph Vickers of Vickers da Costa in founding an Investment Trust, Investing in Success Equities, which led on to other ventures including the Anglo-Nippon Trust, Acorn Securities, and Investing in Foreign Growth Stocks. In 1964, when he became adviser to the Chancellor of the Exchequer, he had to resign from the Boards of all these companies, two of which, ironically, were killed by his own hand with the introduction of capital gains and corporation tax.

It was not only his intellect and passion that made Kaldor dominant and controversial; it was also his style, charm, and sense of fun which made it impossible not to listen to what he had to say. He possessed that rare charisma and magnetic quality which made it difficult not to fall under his spell. When he was an adviser in Ghana in 1961, his hold over the President, Dr Nkrumah, was likened unto the captivating powers of the ju-ju magicians! He could be rude and offend people, but this only seemed to enhance his fascination. In lectures and seminars, he would endear his audience by the heavily accented flow of English prose, which was so much a feature of his personality. His background was Hungarian, but like so many European emigrés, he became more English than the English and revelled in her institutions. The image of a rotund and jovial medieval monk holding forth in intellectual discourse fits him perfectly. Although he was untidy and forgetful in private life, he had an extraordinarily retentive and well-ordered mind that could recall at an instant the issues and controversies of long ago, and he could pluck statistics from the air like rabbits from a hat in support of his case. This gift could make him devastating in debate. He was always a powerful publicist for his views, and by force of personality and sheer perseverance, he would often wear

an opponent down, achieving victory by attrition. He shared with Keynes the urge to protest. He was the most prolific newspaper letter-writing economist of his generation, contributing to debates not just on economic matters, but on social issues and defence as well. Kaldor and Keynes had other intellectual traits in common, and in many ways Kaldor took on, consciously or unconsciously, the mantle shed by Keynes. In particular, both possessed that strong intuition which made them more right in their conclusions and implicit presumptions than in their explanations and explicit statements. Much of Kaldor's work on growth and development falls, I believe, into this category.

Kaldor's love for economics was superseded only by the love for his family from which he derived so much of his inner happiness and self-confidence. In 1934 he married Clarissa Goldschmidt, a history graduate of Somerville College, Oxford, who provided the environment of peace and stability conducive to creativity. The four daughters of the marriage gave him particular pleasure, plus his eleven grandchildren. Kaldor was never happier than when the whole family clan was gathered together for festive or other special occasions in the spacious Edwardian family home at 2 Adams Road, Cambridge, or for holidays at the summer home in Le Garde Freinet, France. He loved to joke and play with young and old. Nothing seemed to trouble him, not even noise. Every day, the ever-open front door of his Cambridge home would invariably see a succession of family and friends toing and froing, while Kaldor worked away unperturbed in his ground-floor study off the entrance hall. He might or might not appear depending on the urgency of the task at hand. He liked to compartmentalize his intellectual effort, working intensely for long periods and then relaxing. This made him appear at times egocentric (and he was), but then he could also be very generous with his time, receiving a succession of invited and uninvited guests who travelled to Cambridge to see the 'great man' as if on a pilgrimage to Buddha. His dearest Cambridge friend was Piero Sraffa, who in his prime would cycle round from Trinity College to Kaldor's house every afternoon to discuss economics and topical matters of the day.

During his lifetime, many honours were bestowed on him, in recognition of his contribution to economic science, and he was in constant demand across the world to give public lectures. He received Honorary Doctorates from the University of Dijon (1962) and Frankfurt University (1982). He was elected an Honorary Member of the Royal Economic Society of Belgium

(1955); an Honorary Fellow of the LSE (1970); an Honorary Member of the American Economic Association (1975)—'a small tribute to your great contribution to economics' is how the President, Professor Kenneth Arrow, described it; a Foreign Honorary Member of the American Academy of Arts and Sciences (1977), and an Honorary Member of the Hungarian Academy of Sciences (1979). In 1970 he was President of the Economics Section (Section F) of the British Association for the Advancement of Science, and in 1974 President of the Royal Economic Society, an honour much coveted by the British economics establishment. In 1974 he was made a Life Peer as Baron Kaldor of Newnham in the City of Cambridge. He used his platform in the House of Lords to great effect. Economic historians will find his speeches one of the finest contemporary records of the economic issues of the day, with a pungency on topical matters reminiscent of the polemical style of Keynes.[5] The major honour that eluded him was the Nobel Prize. He was, in the words of *The Economist* newspaper, 'the best known economist in the world not to have received the Nobel Prize'.[6] Why he was overlooked is still something of a mystery. In the first year of the prize, 1969, he was, according to press reports,[7] on a short list of ten names including Friedman, Samuelson, Meade, Perroux, and Kantorovich, but by his challenge to neoclassical orthodoxy he probably upset too many influential people in the economics establishment, including, presumably, the Swedish Nobel Committee. It may be significant (and some consolation) that none of the great British economists working in the Keynesian tradition—including Roy Harrod or Joan Robinson—were honoured.

Early life, 1908–1939

Kaldór Miklós (Miki) was born in Budapest on 12 May 1908 into a comfortable middle-class Jewish family. His father, Gyula, was a successful lawyer, as legal adviser to the German legation in Budapest. His mother, Jamba, was a well-educated, cultured woman, particularly versatile at languages, including English. There was a daughter of the marriage and two earlier sons, both of whom died in childhood. The young Kaldor, as the only

[5] See *The Economic Consequences of Mrs Thatcher* (London: Duckworth, 1983).

[6] 20 January 1979.

[7] *Financial Times*, 8 August 1969.

surviving son, was undoubtedly spoilt. He first started school at the age of six, and then at ten transferred to Budapest's famous Minta (or Model) Gymnasium, which in those early years of the twentieth century produced a galaxy of distinguished academics including Michael Polanyi, Edward Teller, Leo Szillard, Theo von Karman, Nicholas Kurti, and Thomas Balogh. The young Kaldor's education was squarely in the classical tradition, and throughout his life he retained a deep knowledge and interest in European culture and institutions. Politics and free-lance journalism became his hobbies, and he continued to practise the latter during his student days in Berlin and London. His interest in economics was partly the natural outcome of his fascination with politics and partly inspired by wanting to understand more the German hyper-inflation of 1923. His father had also kindled an interest with the purchase of a copy of Keynes's *The Economic Consequences of the Peace*. He enrolled in the University of Berlin in 1925, committed to the study of economics, but stayed only eighteen months. England, he soon learned, occupied the centre of the economic stage, and he arrived in London in April 1927 to register as a General Student at the London School of Economics to sample the lectures and to improve his English. The summer term was enough to whet his appetite and he enrolled for the B.Sc. (Econ.) degree from October 1927. An allowance from his father and fees from journalism financed his studies. The Hungarian newspaper, *Magyar Hirlap*, employed him, and he was the London correspondent of *Pester Lloyd* with his own headed notepaper. He also wrote for the *London General Press* which syndicated his articles in several countries. His speciality was conducting interviews with prominent personalities, particularly in literary circles, including such famous characters as Hilaire Belloc, G. K. Chesterton, Arnold Bennett, H. G. Wells, John Galsworthy, Arthur Conan Doyle, and Rebecca West.

In his first year at the School, Kaldor attended lectures by Hugh Dalton and John Hicks, among others, and his supervisor was the economic historian Eileen Power (later Postan), whom he held in high regard. His first-year examination performance was no more than mediocre, and he failed (and had to retake) mathematics. There was, however, a dramatic change in the subsequent two years as his interest in economics deepened. Allyn Young, the newly appointed Professor of Economics from Harvard, was a dominant influence in his second year, while Lionel Robbins and a young lecturer, Maurice Allen, dominated his thinking and learning in the third year. Kaldor graduated in

1930 with first-class honours, and became the favourite pupil of Robbins, who had been appointed to a Chair in 1929 following the untimely death of Young from pneumonia. Robbins secured for him a £200 research studentship at the School and gave him his first teaching, supervising second- and third-year students in economic theory. The research award lasted for two years, one term of which in 1931 he spent at the University of Vienna. His research project was the 'Problems of the Danubian Succession States', the main fruits of which were four anonymous articles in *The Economist*;[8] an article in the *Harvard Business Review*;[9] and his first published letter in *The Times* on the dominance of farming in the Danubian States.[10] At the same time he was reading widely in economic theory. He took an early interest in Keynes's *A Treatise on Money*, writing to Keynes asking for clarification over his exchange with Dennis Robertson in the *Economic Journal* of 1931.[11]

Friedrich von Hayek, who was induced to London by Robbins as a counterweight to the growing intellectual influence of Keynes and Cambridge, was also a dominant influence on Kaldor's early thinking. His first published paper on 'The Economic Situation of Austria' was almost pure Hayek in its cyclical analysis of the slump conditions of Austrian industry. With his undergraduate contemporary, Honor Croome (née Scott), he had already embarked in 1930 on an English translation from the German of Hayek's *Monetary Theory and the Trade Cycle*, and he also translated a paper by Hayek on 'The Paradox of Saving' which *Economica* published in 1931. It was in connection with unanswered questions from this paper that Kaldor first started to lose respect for Hayek's work, and this culminated later in devastating critiques of his trade cycle theories and other work. He felt increasingly uneasy with the narrow dogmatism and libertarian philosophy of the Austrian school, which both Robbins and Hayek represented. Kaldor wanted to escape, and he gradually did so, particularly with the help of John Hicks. Kaldor and Hicks shared adjacent flats in Bloomsbury and were close friends before their respective marriages in 1934 and 1935. Hicks introduced Kaldor to Walras and Pareto, and Kaldor read

[8] 14, 21, 28 May and 4 June 1932.

[9] 'The Economic Situation of Austria', October 1932.

[10] 31 March 1932.

[11] See D. Moggridge (ed.), *The Collected Writings of John Maynard Keynes*, Vol. xiii, *The General Theory and After*, Part I, *Preparation* (London: Macmillan, 1973), 238.

various drafts of Hicks's *Value and Capital* that were in preparation between 1930 and 1935. Hicks was also instrumental in introducing Kaldor to the Swedes. Both read in the original Myrdal's 'Monetary Equilibrium' published in 1933, which partly prepared them for the Keynesian revolution to come.

Kaldor became increasingly torn between Robbins and Keynes as mentors. In 1932 he was appointed by Robbins to the staff of the LSE as an Assistant in Economics (later renamed Assistant Lecturer) and naturally felt some allegiance to him, but at the same time he began to feel more secure and independent. His relationship with Robbins waned gradually at first and then gathered momentum to such an extent that Robbins later obstructed his promotion from Assistant Lecturer to Lecturer. Robbins was thoroughly hostile to the Keynesian revolution, effectively denying that the 1930s' depression had anything to do with a lack of effective demand, and denouncing Keynesian remedies of public works. Kaldor was in the United States on a Rockefeller Research Fellowship when Keynes's *General Theory* appeared, and was an immediate convert. He was to play a major proselytizing role in spreading Keynesian modes of thinking to young generations of economists, remaining faithful to the Keynesian tradition for the rest of his life.

In those early years at the LSE, Kaldor's major teaching commitment was a course on the Theory of Costs (later called the Theory of Production). He was a superb teacher.[12] He also lectured in various years on International Aspects of the Trade Cycle; The Theory and Practice of Tariff Making; Advanced Problems of International Trade (shared with John Hicks); Economic Dynamics; Capital and Interest; and Public Finance and the Trade Cycle. As early as 1933, he was beginning to make an academic name for himself. Four major theoretical papers were in embryonic form;[13] he helped to launch the *Review of Economic Studies* and played an active role on the editorial board, and he took an active part in the weekly seminar run by Robbins and Hayek, which in the folklore of the LSE has become as legendary as the Political Economy Club run by Keynes in

[12] See the essay by Aubrey Jones in J. Abse (ed.), *My LSE* (London: Robson Books, 1977).

[13] They were: 'The Equilibrium of the Firm', *Economic Journal*, March 1934; 'Mrs Robinson's "Economics of Imperfect Competition"', *Economica*, August 1934; 'A Classificatory Note on the Determinateness of Equilibrium', *Review of Economic Studies*, February 1934; and 'Market Imperfection and Excess Capacity', *Economica*, February 1935.

Cambridge. It was in reading his paper to the seminar on 'A Classificatory Note on the Determinateness of Equilibrium' that the novel felicitous description of 'cobweb theorem' occurred to him, to explain the oscillatory movements of price around its equilibrium value.

The academic year 1935–6 was spent in the United States where he travelled extensively, meeting many of the leading American economists including Joseph Schumpeter, Edward Chamberlin, Jacob Viner, Henry Simons, and Irving Fisher. At the Econometric Society meetings in New York in December 1935 he read a paper on 'Wage Subsidies as a Remedy for Unemployment',[14] and listened to a paper by Henry Simons on the measurement of income which also indicated how expenditure could easily be calculated to form the basis of an expenditure tax. Kaldor was to resurrect this idea later when he turned his attention to tax matters in the 1950s. On return from the United States, his research output continued apace. In the next four years, there appeared his major survey of capital theory;[15] his attack on Pigou's theory of how wage cuts affect unemployment;[16] his critique of Chamberlin and the distinction between monopolistic and imperfect competition;[17] his devastating critiques of Hayek;[18] his generalization of the General Theory;[19] and his seminal papers in welfare economics,[20] and on trade cycle theory.[21] This massive theoretical outpouring over a short space of years was inventive and innovative in four major areas of economics, and has had a lasting impact. In the theory of the firm, he contributed to the debate over the incompatibility of the assumption of long-period static equilibrium and perfect competition, and developed the notion of 'excess capacity' under imperfect competition; he produced a novel (non-linear) theory of the trade cycle; he laid the foundations of the new welfare

[14] *Journal of Political Economy*, December 1936.

[15] 'The Controversy on the Theory of Capital', *Econometrica*, July 1937.

[16] 'Professor Pigou on Money Wages in Relation to Unemployment', *Economic Journal*, December 1937.

[17] 'Professor Chamberlin on Monopolistic and Imperfect Competition', *Quarterly Journal of Economics*, May 1938.

[18] 'Capital Intensity and the Trade Cycle', *Economica*, February 1939. See also 'Professor Hayek and the Concertina Effect', ibid., November 1942.

[19] 'Speculation and Economic Stability', *Review of Economic Studies*, October 1939.

[20] 'Welfare Propositions in Economics and Interpersonal Comparisons of Utility', *Economic Journal*, September 1939.

[21] 'A Model of the Trade Cycle', ibid., March 1940.

economics; and in the field of Keynesian economics, he converted Pigou to Keynes and provided the most convincing rationale for Keynes's theory of the multiplier. Some brief words in each field are in order.

In 1933, Joan Robinson and Edward Chamberlin, in independent contributions,[22] released the theory of firm behaviour from the straight-jacket of perfect competition. One of Kaldor's important contributions in a seminal paper 'Market Imperfection and Excess Capacity'[23] was to demonstrate that free entry into an industry will only lead to perfect competition if there are non-decreasing returns to scale; otherwise free entry will raise unit costs which will ultimately halt the entry of new firms. Each firm will operate near its break-even point, not where costs per unit of output are at a minimum. This is the famous 'excess capacity' theorem. He went on to argue that if scale economies exist, free entry will not necessarily lead to tangency of the demand curve and the average cost curve, because the minimum size of new entry may dilute demand so much that the demand curve facing each individual firm lies below the cost curve, involving all firms in losses. Equally, the threat of this happening may prevent profit being eliminated, so that 'pure' profit may still exist in a state of equilibrium. Like Marshall and Sraffa before him, and Hicks later, Kaldor recognized that increasing returns has profound implications for neo-classical price, distribution, and employment theory. With constant costs, however, profits will never be eliminated as long as the demand for output is less than infinitely elastic, and this is why constant costs lead to perfect competition: 'no degree of product differentiation and no possibility of further and further product variation will be sufficient to prevent this result, so long as all kinds of institutional monopolies and all kinds of indivisibilities are completely absent.' Later, however, he retracted his views on free entry. In debate with Chamberlin[24] over the meaning of 'monopolistic competition' he conceded that if the distinguishing feature of monopolistic competition is an infinite range of differentiated products, there cannot strictly speaking be 'free entry' since no one else can produce an identical product. There can only be

[22] J. Robinson, *The Economics of Imperfect Competition* (London: Macmillan, 1933), and E. Chamberlin, *The Theory of Monopolistic Competition* (Cambridge, Mass: Harvard University Press, 1933).

[23] *Economica*, February 1935.

[24] 'Professor Chamberlin on Monopolistic and Imperfect Competition', *Quarterly Journal of Economics*, May 1938.

freedom of entry to produce substitutes, which leaves the structure of monopolistic competition intact. In another important contribution 'The Equilibrium of the Firm',[25] he developed a novel theory of differences in the size of firms based on the coordinating ability of managers as the only true fixed factor of production. It was not a theory to which he later attached much importance. Instead, he followed Kalecki and the principle of increasing risk, based on the gearing ratio of firms. Profits are crucial for expansion, not only in themselves, but by enhancing the ability of firms to borrow in the market.

During this fertile theoretical period of the 1930s, Kaldor also became heavily involved in debates on the trade cycle, taking up cudgels against Hayek and the Austrians. Their theory was monetary in essence, not dissimilar to Wicksell's, relating to divergences between the money rate of interest and the natural rate of interest. Kaldor was to absorb this theory and eventually to demolish it in a powerful paper 'Capital Intensity and the Trade Cycle'.[26] Hayek himself changed his mind over movements in capital intensity and the origins of cyclical crisis during the upswing. In *Monetary Theory and the Trade Cycle*[27] he argued that capital intensity increased during the upswing which then caused adjustment problems as credit expansion was curtailed. Later, in *Profits, Interest and Investment* (1939), he argued the exact opposite, that employers would seek more labour intensive methods of production as real wages fell (the Ricardo effect). Kaldor also launched into this *volte face*, for which he was partly responsible in the first place, in another powerful paper 'Professor Hayek and the Concertina Effect'.[28] Firstly, he objected to Hayek's use of the term 'Ricardo effect', since Ricardo's argument concerning factor proportions referred to the relative price of labour and machinery, not to the price of consumption goods affecting real wages. Secondly, he went on to show the special conditions necessary for the Ricardo effect to work, and to argue that if it does work, its quantitative effect would be small. But whatever happens, it can never lead to *less* investment because a rise in the rate of interest, which is a necessary condition for the Ricardo effect to work, will only occur if investment increases. At the empirical level, Kaldor could find no clear cyclical pattern of capital intensity (or concertina effect). He joked: 'I think the

[25] *Economic Journal*, March 1934.
[26] *Economica*, February 1939.
[27] Translation by Kaldor and H. Croome (London: J. Cape, 1933).
[28] *Economica*, November 1942.

evidence rather suggests that the concertina, whichever way it goes, makes a relatively small noise—it is drowned by the cymbals of technical progress.' Kaldor sent Keynes a copy of his 1942 paper to which Keynes replied: 'Your attack on poor Hayek is not merely using a sledge hammer to crack a nut, but on a nut which is already decorticated.' Kaldor reminded Keynes that Hayek had spent the whole of the summer term in Cambridge discussing with students his paper on the Ricardo effect 'creating an unwholesome muddle in the minds of the young'.

Kaldor's brush, and ultimate break, with the Austrians led him to examine the meaning and determination of the concept of the 'investment period' in a major survey of capital theory published in *Econometrica* 1937.[29] Kaldor concluded that the investment period concept is really nothing more than one way of measuring the ratio of capital to labour, but since there is no unique measure of capital, there is no unique measure of the capital to labour ratio. It is possible, however, to construct *ordinal* measures. He criticized conventional measures which were sensitive to changes in the relative price of inputs and outputs without any change in the real structure of production having taken place, and proposed himself an index of the ratio of 'initial cost' to 'annual cost' in the production of output. In this major contribution to the capital theory debate, Kaldor also anticipated von Neumann's famous result that the rate of interest represents the highest potential rate of growth of an economy which would obtain if nothing were withdrawn from the economic system for unproductive consumption.[30]

Kaldor's own original contributions to trade cycle theory came in two papers 'Stability and Full Employment'[31] and 'A Model of the Trade Cycle',[32] in which he argued that instability is inherent in the economic system itself because there is no reason why the division of income for consumption and saving should be in the same proportion as the division of output. All booms must come to an end, either through credit restrictions, rising interest rates, excess saving, or, in the final analysis, through a shortage of labour. The trade cycle is the price to be paid for a high rate of

[29] 'The Controversy on the Theory of Capital', *Econometrica*, July 1937. Also 'On the Theory of Capital: A Rejoinder to Professor Knight', ibid., April 1938.

[30] See J. von Neumann, 'A Model of General Economic Equilibrium' *Review of Economic Studies*, no. 1, 1945.

[31] *Economic Journal*, December 1938.

[32] Ibid., March 1940.

economic progress, which was also the view of Dennis Robertson. Mechanisms do exist, however, that may bring about a stable equilibrium, and in 'Stability and Full Employment' there are to be found the early seeds of Kaldor's macro-theory of distribution which did not fully germinate until 1956. Kaldor first started thinking about trade cycle theory when he gave four lectures on the international trade cycle at the LSE in 1933–4. He realized that the task was to explain oscillations between a low and a high level equilibrium and that this could not be done using a linear accelerator. An S-shaped investment (and savings) curve would be a plausible hypothesis, however. At low levels of output, increased output will not induce more investment because there is excess capacity, and at high levels of output there will be no inducement to invest if increases in output are impossible. Saving is also likely to be a non-linear function of output, but probably more sensitive than investment at both high and low levels of output.[33] With these two functions, Kaldor showed that the economic system can reach stability at either a high or low level of economic activity.[34] Shifts in the curves then produce limit cycles: at high levels of output, the investment curve shifting down and the savings curve up, and *vice versa* at low levels of output.

Another of Kaldor's original insights at this time was in the field of welfare economics. With Hicks, although with prior claim, he was the founder of what came to be called 'the new welfare economics'. Kaldor's short seminal paper 'Welfare Propositions in Economics and Interpersonal Comparisons of Utility'[35] was a reaction against the nihilism of Robbins and the Paretian school that, if an economic change makes some people better off, but others worse off, it is impossible to make a judgement about whether the change is desirable (in the sense of increasing welfare) because individual utilities cannot be compared. Kaldor interpreted Robbins's stance as support for the *laissez-faire* approach to economic affairs, and as a recipe for economic paralysis. Kaldor's innovation was to introduce the idea of compensation tests: that if the gainers from a policy change could *potentially* compensate the losers and still be better off, the economist should be able to endorse the policy change

[33] Kaldor effectively anticipated Duesenberry's relative income hypothesis of a 'customary' standard of living below which people dissave drastically and above which they save a lot.

[34] 'A Model of the Trade Cycle', *Economic Journal*, March 1940.

[35] Ibid., September 1939.

since output must have increased. The compensation test would allow the economist to say something positive about output, although not about its distribution. A similar distinction between efficiency and distribution had been made by Pigou in his writings on welfare economics, and Hicks endorsed the Kaldor test.[36] The Kaldor–Hicks criterion gave rise to a vast literature, but with no resolution, not least because interpersonal comparisons of utility are still needed if welfare judgements are to be made. There could be changes which satisfy the Kaldor compensation test but which leave the community worse off than before because the income distribution is more 'undesirable' in some sense. This later formed the basis of the attack on the new welfare economics led by Ian Little.[37] There is no solution to the problem of deciding whether one distribution of income is worse or better than another unless a social welfare function is specified which makes explicit value judgements about the income distribution. This was Kaldor's original intuition, which he confirmed in a paper in 1946,[38] and which partly explains why he never participated in the subsequent debates.

In the field of macro-economics, concerned with employment and the Keynesian revolution, Kaldor's first paper was on wage subsidies and employment.[39] It reflected his neo-classical background and training—although he tried, at the same time, to forge a bridge between Keynes and the classics. Well before Keynes's *General Theory* was published in 1936, the emerging 'Keynesian' consensus was against money wage cuts because this would simply reduce prices leaving real wages and employment unchanged. Kaldor believed wage subsidies to be a (compromise) alternative, since subsidies do not reduce money demand and therefore should not affect prices. When Kaldor wrote to Joan Robinson about his scheme, she claimed not to understand the argument unless subsidies raised the propensity to consume through a redistribution of income to labour. They would, but that was not Kaldor's point. Kaldor replied in exasperation: 'I fear that Cambridge economics is beyond me!'[40] Kaldor was later

[36] J. Hicks, 'The Foundations of Welfare Economics', *Economic Journal*, December 1939.

[37] *A Critique of Welfare Economics* (Oxford: Clarendon Press, 1950).

[38] 'A Comment on W. J. Baumol's Community Indifference', *Review of Economic Studies*, xiv, no. 1.

[39] 'Wage Subsidies as a Remedy for Unemployment', *Journal of Political Economy*, December 1936.

[40] Unpublished letter to Joan Robinson, 3 June 1935, King's College Library, Cambridge.

to join the Cambridge fold, but not before two major contributions which helped to seal the Keynesian revolution. The first was his attack on Pigou, which converted Pigou to Keynesian ways of thinking. This was a notable victory. The second was the generalization of the *General Theory* explaining why it is output and not prices (the rate of interest) that adjusts savings to investment. Pigou was the defender of the classical faith in Cambridge and was quick into print following Keynes's demolition of classical full employment theory. Pigou continued to maintain that a cut in money wages could increase employment in the aggregate independently of a fall in the rate of interest, and published a paper to this effect in the *Economic Journal*.[41] The paper had been accepted by Dennis Robertson, standing in for Keynes as editor, who was ill. On reading the paper, Keynes described it as 'outrageous rubbish beyond all possibility of redemption', and castigated Robertson for publishing it.[42] The sentiments were shared by Kahn, Shove, and Sraffa. It was Kaldor, however, who persuaded Pigou of the error of his ways, as Pigou later conceded. Kaldor showed in his response to Pigou[43] that the new equilibrium after a wage cut *must* imply a lower rate of interest. Kaldor modified Pigou's model to make saving a function of income in addition to the rate of interest, and showed that there is no way in which a change in money wages by itself could so alter savings and investment to ensure equality of the two at a *given* rate of interest. Kaldor was the first economist (after Keynes) to use rigorously what later came to be called 'the Keynes effect'. He recognized explicitly that a fall in money wages is exactly analogous to an increase in the nominal quantity of money or a reduction in liquidity preference. Keynes also replied to Pigou, but when Pigou responded to his critics and conceded the argument, it was Kaldor he addressed. He paid him the compliment of saying that 'the theory of the relation between money wages and employment, via the rate of interest, was invented by Kaldor'. Keynes was naturally annoyed by this, having devoted Chapter 19 of the *General Theory* to this very topic. It needs to be stressed, however, that Pigou conceded to

[41] A. C. Pigou, 'Real and Money Wage Rates in Relation to Unemployment', *Economic Journal*, September 1937.

[42] For all the correspondence see D. Moggridge (ed.), *The Collected Writings of John Maynard Keynes*, Vol. xiv, *The General Theory and After*, Part II, *Defence and Development* (London: Macmillan, 1973).

[43] 'Professor Pigou on Money Wages in Relation to Unemployment', *Economic Journal*, December 1937.

Kaldor not on grounds of liquidity preference but on the assumption that an increase in output must reduce time preference and hence the equilibrium rate of interest. This led to the contention by some that a Keynesian conclusion had been accepted, in effect, by a non-Keynesian route. This was an understandable reaction, but Kaldor cleared up the confusion pointing out that liquidity preference considerations need only be invoked to explain why a reduction in time preference (which must occur) *fails* to produce a fall in the rate of interest.[44] Otherwise, with a normal classical savings function the interest rate is bound to fall.

The paper that gave Kaldor most intellectual satisfaction, however, and his most notable, but neglected, contribution to the immediate Keynesian revolution, was 'Speculation and Economic Stability'[45] (including 'Keynes's Theory of the Own-Rates of Interest', originally written as an appendix, but published much later).[46] It addressed three important questions. First, why does an increase in saving not necessarily lead to an increase in investment; in other words, what are the necessary, if not sufficient, conditions for the workings of the income multiplier? Secondly, what determines the structure of interest rates? Thirdly, what asset sets the ultimate limit on employment by limiting the willingness to invest, and why? Kaldor's answer to the first question was the stabilizing influence of speculators. The greater the stability of price, the greater the instability of income. Kaldor believed that in the real world, the most important type of asset whose price is stabilized through speculation is long-term bonds bought with savings. The less price fluctuates, the stronger Keynes's theoretical conclusion that savings and investment will be equated by a change in the level of income rather than by the rate of interest. The question then is what determines the 'normal' price of bonds, i.e. what anchors the long-term rate of interest? Dennis Robertson, it will be remembered, accused Keynes of leaving the long-term rate of interest 'hanging by its own bootstraps'. Kaldor addressed this question providing a 'bottom up' theory of the rate of interest in which the term structure of interest rates is determined by the convenience yield on money plus a risk premium on assets of different maturities.

[44] 'Money Wage Cuts in Relation to Unemployment: A Reply to Mr. Somers', *Review of Economic Studies*, June 1939.

[45] *Review of Economic Studies*, October 1939.

[46] *Collected Economic Essays*, ii (London: Duckworth, 1960).

He repeated and defended this view many years later in his evidence to the Radcliffe Committee on the Working of the Monetary System (1959). Finally, it must be the asset, money, which sets the ultimate limit to employment because only the money rate of interest cannot be negative whereas the own-rates of interest on other assets can be negative, and therefore cannot set the limit on investment. Kaldor was reacting against Keynes's suggestion in the *General Theory* that the desire in the past to hold land might have kept the interest rate too high, and that the desire to hold gold might do so in the future.

The war and immediate post-war years

The theoretical outpouring of the LSE before the war established Kaldor as one of the world's leading young economic theoreticians. At the outbreak of war he was still only 31 years old. The war had two major impacts on his future career. First, the evacuation of the LSE to Peterhouse, Cambridge, brought him into direct contact with the Cambridge Keynesians. Joan Robinson, Richard Kahn, and Piero Sraffa became close academic friends, and together they formed the 'war circus', which later became the 'secret seminar' (although everybody knew of its existence!). Cambridge became his natural spiritual home, to which he was later invited to return, and he did so permanently in 1949. Secondly, the imperatives of war, and the necessity to plan for peace, switched his mind from pure theory to applied economics, and he rapidly became one of the leading applied economists of his generation. Apart from pure academic research, including new projects on the economics of taxation and of advertising under the auspices of the National Institute of Economic and Social Research, he became actively involved in the economic aspects of the war in three important fields: the finance of the war effort; national income accounting; and the problems of post-war reconstruction particularly in relation to Beveridge's proposals on Social Insurance and on Full Employment. He became friendly with Keynes and they communicated on a regular basis over a variety of matters connected with war finance and national income accounting. In particular, Kaldor made a number of practical suggestions on how Keynes's compulsory savings scheme might be made operational, and offered many constructive suggestions on the papers Keynes was writing on the estimation of national income. After the first White Paper

on National Income appeared,[47] Kaldor's annual reviews of them in the *Economic Journal*[48] became a much-awaited event in the economics calendar in this country and abroad. His detailed grasp of national income accounting, and his attempts at forecasting, proved invaluable when it came to the assessment of the financial burden of the *Beveridge Report on Social Insurance and Allied Services* published in December 1942;[49] a plan which aroused great controversy. Opponents of extended State insurance claimed that it would be necessary to raise employers' contributions and the standard rate of income tax to over 50 per cent, with devastating effects on export performance and work effort. Kaldor showed convincingly that the price to be paid for comprehensive insurance against old age, sickness, and unemployment—what Beveridge labelled 'Freedom from Want'—would not be more than 'ten [old] pence on income tax or six pence on income tax and a penny on a pint of beer'.[50] Kaldor was the most influential economist to pave the way for the political acceptance of one of the great social advances of the modern age. The theme of the second Beveridge Report on full employment[51] was 'Freedom from Idleness'. Kaldor's contribution to the Report, contained in the now-famous Appendix C, was to calculate (with Tibor Barna) the revenue and expenditure implications of the government pursuing a fiscal policy to maintain full employment, and in doing so he developed what was virtually the first mini-econometric model of the UK economy. The meticulous analysis received high praise from all quarters in this country and abroad, although there was some questioning of the arithmetic and the optimism over the required levels of taxation for post-war reconstruction.[52] As it turned out, he was too optimistic about the assumed increase in real national

[47] The first was *Analysis of the Sources of War Finance and Estimates of the National Income and Expenditure in 1938 and 1940*, Cmnd. 6261 (London: HMSO, 1941).

[48] See *Economic Journal*, June–September 1941, June–September 1942, and June–September 1943.

[49] Cmnd. 6404 (London: HMSO, 1942).

[50] 'The Beveridge Report II: The Financial Burden', *Economic Journal*, April 1943.

[51] W. Beveridge, *Full Employment in a Free Society* (London: George, Allen and Unwin, 1944).

[52] It was calculated that only a 6 per cent rise in tax rates would be required to 'finance' full employment. For a critique of the arithmetic see *The Economist*, 24 February 1945.

income after the war, and underestimated the expansion of public spending on non-social and non-military items.

Kaldor did not confine himself solely to domestic issues. He took a keen interest in the war effort of Germany, and followed closely the economies of the allied countries. He also played a prominent role in public discussion of the international economic issues confronting the world economy at the time, including the Bretton Woods plan for a new international monetary system, and the American loan to Britain.

When the war ended, Kaldor wanted some of the war-time controls retained, to ease the transition to peace and to prevent the prospect of a short-lived boom followed by slump, which characterized the aftermath of the First World War. He identified three major objectives of economic reconstruction: full employment; the elimination of poverty; and improved efficiency. The Beveridge proposals, which he campaigned for, were designed to secure the first two objectives. In pursuit of the third, he favoured the retention of building and import controls, and advocated the continuation and extension of utility production to reap economies of scale.

The reputation that Kaldor built up during the war as an incisive applied economist led to numerous offers of jobs and advisory posts after the war, when the LSE had returned to London. He was made a Reader in Economics at the LSE in 1945, but was more than receptive to outside work, having become increasingly disenchanted with what he perceived to be the right-wing atmosphere of the School. At home, he was employed for a short time in 1946 as an economic adviser by the Air Ministry and Ministry of Supply to assist the British Bombing Survey Unit. He also became a regular contributor to *The Manchester Guardian* writing articles on aspects of post-war recovery. Abroad, he undertook three important missions. The first in 1945 was to act as Chief of the Planning Staff of the US Strategic Bombing Survey of Germany under the overall direction of Kenneth Galbraith. In that capacity, he interviewed many of the German generals, including Halder, and helped to show that it was not the US Air Force that won the war, but rather the ground troops which proved decisive.[53] In 1946 he served as an adviser to the Hungarian government on its new Three Year Plan, and in 1947 he was invited to assist Jean

[53] See *The Effects of Strategic Bombing on the German War Economy*, US Strategic Bombing Survey, Washington, 1945.

Monnet at the French Commissariat General du Plan in preparing a plan for the financial stabilization of France. A whole new series of tax measures was proposed,[54] very similar to the reforms he later advocated in the context of developing countries.

Then came the invitation from Gunnar Myrdal to become the first Director of the Research and Planning Division of the newly created Economic Commission for Europe (ECE) in Geneva. There were difficulties in him taking leave from the LSE, and he consequently resigned his teaching post at the School after twenty years as student and don. The two years he spent in Geneva were among the happiest and most stimulating of his professional career, living in elegance on the shores of Lake Geneva with a young family, and in charge of a talented handpicked staff—including Hal Lary, Robert Neild, Esther Boserup, Helen Makower, and P. J. Verdoorn. Kaldor worked like a Trojan, with the specific task of preparing an annual *Economic Survey of Europe*. When the first (and subsequent) *Surveys* appeared they attracted widespread international interest and were treated as the authoritative account of the economic conditions and trends in both eastern and western Europe.

While in Geneva, Kaldor also became involved in several special assignments including acting as adviser to the UN Technical Committee on Berlin Currency and Trade established in the winter of 1948–9 in an attempt to end the Soviet blockade of Berlin, and serving on an UN Expert Committee in 1949 to prepare a Report on National and International Measures for Full Employment. In the former capacity, he cross-examined representatives of the big-four powers in the light of the evidence of each, and then drafted the Report recommending the Soviet mark as the sole currency for Berlin. In the event, the stance of the western powers hardened as the blockade began to be breached, and the blockade was eventually lifted unconditionally. The widely acclaimed *Report on National and International Measures for Full Employment*[55] was largely drafted by Kaldor, and its adoption by such a wide diversity of interests represented at the United Nations owed much to his verbal dexterity. Much of the Report was devoted to a discussion of the international propagation of cyclical disturbances, and the necessity for countries to strive for balance of payments equilibrium to avoid trade

[54] 'A Plan for the Financial Stabilisation of France' in *Collected Economic Essays*, viii (London: Duckworth, 1980).

[55] United Nations, Geneva, 1949.

restrictions and deflationary bias in the world economy. *Plus ça change plus c'est la même chose!* Such was the impact of the Report that Kaldor was asked by the Council of Europe to chair a Working Party on how the recommendations of the Report might apply to Europe. The outcome was a further influential document, *Full Employment Objectives in Relation to the Problem of European Co-Operation*,[56] which recommended, amongst other things, a European Investment Bank and import controls, if necessary, to secure simultaneous internal and external balance. Kaldor's contribution to the international campaign in pursuit of full employment impressed Hugh Gaitskell, the Labour Chancellor of the Exchequer (1950–1), and led in 1951 to his appointment to the Royal Commission on the Taxation of Profits and Income. This was Kaldor's entrée to the role of adviser at the highest level in the United Kingdom and abroad.

Kaldor had not been long in Geneva when he was approached by King's College, Cambridge, to accept a Fellowship there. King's was short of economists, as Keynes and Gerald Shove had recently died, and Kahn was busy administering Keynes's estate. The *New York Times Magazine* described such an appointment as 'being one of such honour and prestige for an economist that there are not five posts in the world more coveted by a man of that profession'.[57] Cambridge was his natural intellectual home, and he accepted the offer provided he could postpone his arrival in order to complete his work for the ECE. He finally started teaching in Cambridge in January 1950, with a University Lectureship also conferred on him. King's, and the Cambridge Economics Faculty, remained his academic base for the rest of his life. He was made a Reader in Economics in 1952 and elevated to a Chair (with Joan Robinson) in 1966. Unlike Keynes, he chose not to play an active role in College life; nor did he assume any major administrative role in the Economics Faculty. He preferred to devote his time exclusively to research and writing, and later to politics and the role of adviser in several capacities.

Tax matters

Kaldor and John Hicks were the only two academic economists

[56] Council of Europe, Strasbourg, 1951.
[57] 12 September 1948.

appointed to the Royal Commission on the Taxation of Profits and Income in 1951, with Kaldor much more radical in his approach to tax matters. His immersion in issues of taxation for the next four years turned him into one of the world's leading tax experts. The Memorandum of Dissent to the Commission's Report,[58] which he drafted, and his book *An Expenditure Tax* (1955), became minor classics in the literature on taxation. The American public finance expert, Arnold Harberger, described the latter as 'one of the best books of the decade in public finance, ranking with the classic works of Edgeworth, Pigou, Simons and Vickrey'.[59] Kaldor's campaign for a comprehensive definition of income, as the basis for a more equitable tax system, made him more and more influential in Labour Party circles, which culminated in his appointment in 1964 as Special Adviser on tax matters to the Chancellor of the Exchequer and led to a flood of invitations from developing countries to advise on tax matters, starting with India in 1956. Perhaps more than any other economist of his generation, Kaldor had an abiding faith in the power of taxation to alter significantly the performance of an economy. The desire to see social justice was also a strong motivating factor behind all his advice. In the 1960s and 1970s in the United Kingdom, he was the proposer and inventor of a variety of ingenious new tax schemes to enhance equity and to improve the performance of the British economy.

The equity of a tax system is to be judged by whether people with the same taxable capacity, or ability to pay, pay the same amount of tax. By this criterion, Kaldor viewed the UK tax system as 'absurdly inequitable' in the sense that the tax burden on some people was very heavy while on others it was very light according to how income was earned: whether or not they were property owners, and so on. Income by itself, however, is not an adequate measure of ability to pay because however comprehensively income is defined, it ignores taxable capacity that resides in property as such. This constituted for Kaldor an argument for measuring ability to pay by spending power rather than by income, but consideration of an expenditure tax was outside the Royal Commission's terms of reference. Kaldor's Memorandum of Dissent confined itself, therefore, mainly to existing inequities in the tax system relating to the exemption from tax of

[58] Cmnd. 9474 (London: HMSO, June 1955), also signed by George Woodcock and Mr H. L. Bullock.

[59] *Journal of Political Economy*, February 1958.

capital gains and to the differential treatment of the self-employed and others. A flat rate capital gains tax was recommended and this later became official Labour Party policy. Company taxation also came in for criticism. Kaldor wanted a single corporation tax but not an end to tax discrimination against distributed profits until a capital gains tax was introduced. Kaldor's name is identified most closely, however, with the advocacy of an expenditure tax. The idea of an expenditure tax was not new—it had been discussed in the past by Hobbes, J. S. Mill, Marshall, Pigou, and Keynes—but no one before Kaldor had exposed so comprehensively the weaknesses of income as a measure of taxable capacity. Moreover, if wealth is not taxed, inequity is even more acute, and Kaldor wanted to see the taxation of wealth too. A wealth tax became Labour Party policy, but was never implemented. An expenditure tax has never found favour with any political party in the United Kingdom. India and Sri Lanka (on Kaldor's advice) have been the only two laboratory experiments, and in both countries the tax was withdrawn within a few years of implementation.

After finishing his work with the Royal Commission, Kaldor took a sabbatical year from Cambridge in 1956 and embarked on a world tour with his family, giving lectures wherever he went. He spent half the year in India and the Far East and then went to Latin America as consultant to the Economic Commission for Latin America (ECLA) in Santiago at the invitation of Raul Prebisch, visiting Mexico and Brazil on the same trip. He delivered thirteen lectures in Chile on 'The Theory of Economic Development and Its Implications for Economic and Fiscal Policy' and five lectures at the University of Rio de Janeiro on the 'Characteristics of Economic Development' at the invitation of Roberto Campos. He returned to England via the United States where for a short time he was Seager Visiting Lecturer at Columbia University.

His journeys round the world as a tax adviser started in India in 1956, and his classic report on Indian tax reform is by far the most comprehensive.[60] It contains one of the clearest statements ever made of the case for wealth taxation. Many of the recommendations made for India to tighten up the tax system to provide a basis for social justice, efficiency, and growth, are found in his later proposals for other countries with suitable

[60] *Report of a Survey on Indian Tax Reform* (Ministry of Finance, Government of India, Delhi, 1956).

modification for individual country circumstances. He gave tax and budgetary advice to Ceylon (1958), Mexico (1960), Ghana (1961), British Guiana (1961), Turkey (1962), Iran (1966), and Venezuela (1976). The proposed reforms and advice invariably received a hostile reception from vested interests, but he never wavered from the conviction that 'progressive taxation is the only alternative to complete expropriation through violent revolution'. The proposals for India, some of which were repeated for other countries, were: a) that all income (including capital gains) should be aggregated and taxed progressively with a maximum marginal rate of 50 per cent (Kaldor did not believe in 'confiscatory' taxation for social justice); b) a progressive personal expenditure tax imposed on rich individuals where income tax leaves off; c) a wealth tax; d) a gifts tax; e) a corporation tax imposed at a single rate; and f) a comprehensive and self-enforcing reporting system, and a more professional tax administration with highly paid officials immune from the temptation of bribes. The Indian Report received a generally hostile reception in the country itself, but was highly praised by tax experts. Ursula Hicks described it as 'an outstanding and remarkable achievement'.[61] Kaldor became embroiled in political controversy almost everywhere he went. In 1958 he was called to advise the Prime Minister of Ceylon, Mr Bandaranaike. A Report was prepared and accepted, but, owing to racial and other disturbances at the time, it was not published until 1960—ironically by the newly elected right-wing United National Party who attempted to show that Bandaranaike (and his successor) had failed to implement fully the desirable recommendations relating to the extension of the tax base and the reduction of tax rates. His mission to Mexico in 1960 to make a study of the 'Possibilities and Conveniences of Modifying the Structure and Organisation of the Mexican Tax System' was so sensitive that to write the Report he remained *incognito* for a month locked away in the hills outside Mexico City. The Report was never published,[62] the government fearing opposition and trouble from vested interests. A year later he went to Ghana to advise President Nkrumah. The country was in financial crisis, arising largely from the extravagance and corruption of the government. There was an urgent

[61] U. Hicks, 'Mr Kaldor's Plan for the Reform of Indian Taxes', *Economic Journal*, March 1958.

[62] At least not in Mexico. It was published much later in Kaldor's *Collected Economic Essays*, viii.

need for tax reform and to increase savings. Kaldor's proposed compulsory savings scheme, and the taxation of multinational companies, caused a wave of political protest and strikes. Later in the same year he was requested by Dr Cheddi Jagan, the Prime Minister of British Guiana, to undertake a comprehensive review of the tax system there with a view to increasing revenue and distributing the burden more equitably. British Guiana was also in a financial crisis with a lack of confidence at both home and abroad, manifesting itself in heavy capital outflows. The budget proposals designed by Kaldor, again including compulsory saving and anti-tax avoidance measures, provoked a general strike and serious anti-government riots which had to be quelled by British troops. 60,000 demonstrators stormed the Parliament building and there were five deaths. A Commonwealth Commission appointed to enquire into the origins of the disturbances, however, exempted Kaldor's budgetary proposals from *direct* blame; it was, the Commission concluded, a case of spontaneous combustion fermented by a number of forces, including an opportunity to protest against Dr Jagan and his government.[63] His mission to Turkey in 1962 at the request of the State Planning Organization was to prepare a memorandum on the problems of fiscal reform for use by the Prime Minister, Mr Ismet Inonu. Most of the proposals, including a novel land tax on the productive *potential* of land, were opposed by the Cabinet representing the landed interest and nothing was done, which led four top officials of the State Planning Organization to resign in protest. Despite these setbacks, Kaldor firmly believed that the job of an adviser is to advise to the best of his professional ability, leaving the politicans to decide whether to implement the recommendations or not.

Growth and development

The 1950s in Cambridge was perhaps the most fruitful period in Kaldor's academic life. While still immersed in tax matters, he began the daunting task, aided by Joan Robinson, Richard Kahn, and (later) Luigi Pasinetti, of rethinking the whole of growth and distribution theory on non-neo-classical, Keynesian lines. He was profoundly dissatisfied with both the neo-classical theory of distributive shares, based on the perfectly competitive

[63] *Report of the Commission of Inquiry into Disturbances in British Guiana in February 1962*, Colonial White Paper No. 354 (London: HMSO, 1962).

assumptions of constant returns to scale and marginal productivity factor pricing, and (later) with the neo-classical theory of long-run equilibrium growth based on an exogenously given rate of growth of the labour force and technical progress, with adjustment to equilibrium growth brought about by a smooth change in factor proportions. He was also unhappy with the generally pessimistic nature of the 'classical' growth models of Ricardo, Mill, and Marx, which appeared to be at variance with the facts of historical experience. In a remarkable series of papers between 1956 and 1966[64] Kaldor helped to lay the foundations of the neo- or post-Keynesian school of economics, with adherents and disciples throughout the world. This was the start[65] of the famous neo-Keynesian—neo-classical controversies between Cambridge, England, and Cambridge, Massachusetts, USA, which captivated and preoccupied large sections of the economics profession throughout the 1960s. Kaldor and Joan Robinson became the *bêtes noires* of the American economics establishment. As Ford Visiting Professor at the University of California in 1959, Kaldor acquired the affectionate nickname of 'enfant terrible of the Bay Area'!

One of Kaldor's earliest attacks on classical pessimism was a bold lecture on Marx that he delivered in Peking in 1956 (which he visited from India), in which he rejected the view that unemployment, cyclical fluctuations, and growing concentrations of economic power are the inevitable features of capitalist evolution. The fact that money wages may rise as the reserve army of unemployed disappears does not imply a fall in profits because *real* wages may fall (or not rise as fast as productivity in a growing economy). Money wages and real wages are determined by different forces, and there can be no presumption of crisis based on a falling rate of profit. He went on to expound his own unique macro-theory of distribution (published a few months before in the *Review of Economic Studies*), which originated from a

[64] E.g. 'Alternative Theories of Distribution', *Review of Economic Studies*, xxiii, no. 2 (1956); 'A Model of Economic Growth', *Economic Journal*, December 1957; 'Capital Accumulation and Economic Growth' in F. Lutz (ed.), *The Theory of Capital* (London: Macmillan, 1961); 'A New Model of Economic Growth', *Review of Economic Studies*, June 1962 (with J. Mirrlees); and 'Marginal Productivity and the Macro-economic Theories of Distribution: Comment on Samuelson and Modigliani, ibid., October 1966.

[65] See also J. Robinson, 'The Production Function and the Theory of Capital', ibid., xxi, no. 2 (1954).

meeting of the 'secret seminar' at the end of 1955, and which derived its inspiration from the insight in Keynes's *Treatise on Money*, I (1930) that profits are the result of the expenditure decisions of entrepreneurs, not the cause: the so-called 'widow's cruse'. Kalecki had the same insight but used it to show why the level and fluctuations of output are particularly dependent on entrepreneurial behaviour, not specifically as a theory of the share of profits in output.[66] He relied instead on the concept of the 'degree of monopoly'. Kaldor's model is beautiful in its simplicity, and it will surely rank in the history of economic thought as one of the fundamental new theoretical breakthroughs of the twentieth century. In words, the model states that given that investment is autonomous and determines saving, and given that the propensity to save out of profits is greater than out of wages, there will be a unique equilibrium distribution of income between wages and profits associated with that level of investment. Full employment is assumed, and this was regarded by some as a weakness, but as Sen,[67] Harcourt[68] and Wood[69] have shown, the model can be generalized to non-full employment situations. Kaldor's theory of distribution spawned an enormous literature, including the famous Pasinetti Paradox, which showed that even if workers save and receive profits, the theory remains intact with only the distribution of income between workers and capitalists affected, not the equilibrium share of profits in income.[70] Samuelson and Modigliani challenged Pasinetti's elegant generalization of Kaldor's model, and argued that if realistic parameter values are assumed for the model, the workers' saving propensity will exceed the investment ratio, and capitalists would disappear entirely.[71] In this case, the steady state conditions *would* be determined by the workers' propensity to save out of profits. Kaldor replied with his famous neo-Pasinetti theorem,[72] which

[66] M. Kalecki, 'A Theory of Profits', *Economic Journal*, June–September 1942.

[67] A. Sen, 'Neoclassical and Neo-Keynesian Theories of Distribution', *Economic Record*, March 1963.

[68] G. Harcourt, 'A Critique of Mr Kaldor's Model of Income Distribution and Economic Growth', *Australian Economic Papers*, June 1963.

[69] A. Wood, *A Theory of Profits* (CUP, 1975).

[70] L. Pasinetti, 'Rate of Profit and Income Distribution in Relation to the Rate of Economic Growth', *Review of Economic Studies*, October 1962.

[71] P. Samuelson and F. Modigliani, 'The Pasinetti Paradox in Neoclassical and More General Models', *Review of Economic Studies*, October 1966.

[72] 'Marginal Productivity and the Macro-Economic Theories of Distribution: Comment on Samuelson and Modigliani, ibid.

was never challenged by the Cambridge, Massachusetts, school. The new model of distribution also provided within limits an alternative mechanism to that of neo-classical theory for equilibriating the warranted and natural growth rates. If the warranted rate lay above the natural rate, with planned saving in excess of planned investment, the share of profits would fall reducing the savings ratio, and vice versa. This seemed infinitely more plausible to the Cambridge, England, school than the idea (as Joan Robinson once graphically put it) of the existing stock of 'jelly' [capital] being spread out or squeezed up to employ all available labour.

In 1957 and 1958, armed with his distribution theory, Kaldor set about to build a growth model to explain what he regarded to be the 'stylized facts' of capitalist economic history: a steady trend rate of growth of labour productivity; a steady increase in the capital–labour ratio; a steady rate of profit on capital; the relative constancy of the capital–output ratio; a roughly constant share of wages and profits in national income; and wide differences in the rate of growth of output and productivity between countries with similar capital–output ratios and distributive shares. Kaldor wanted to show how these various tendencies and 'constancies' are the consequence of endogenous forces operating in capitalist economies, and that it is not satisfactory to explain them on the basis of chance coincidence and unsupported assumptions such as neutral disembodied technical progress; constant returns to scale; and a unitary elasticity of substitution between capital and labour. Apart from his distribution theory, the other main novel feature of Kaldor's growth models was the idea of a technical progress function to overcome the artificial distinction implicit in the production function between movements along a function (due to relative price changes) and shifts in the whole function (due to technical progress). Technical progress, for the most part, requires investment, and investment normally embodies new ways of doing things. The technical progress function thus relates the rate of growth of output per worker to the rate of growth of capital per worker, with the shape of the function dependent on the degree to which capital accumulation embodies new techniques which improve labour productivity. Shifts in the function will change the relation between capital and output, but at the same time will set up forces, through a change in investment, which restore the capital–output ratio to its equilibrium level. Steady long-run growth is determined by the parameters of the technical progress

function incorporating both exogenous and endogenous forces. With the long-run equilibrium growth rate determined, the equilibrium investment ratio, the profits share and the profit rate can all be derived, providing an explanation of the 'stylized' facts of capitalist development.

As Kaldor grew older (and perhaps wiser?), he lost interest in theoretical growth models and turned his attention instead to the applied economics of growth. Two things particularly interested him: first, the search for empirical regularities associated with 'interregional' (country) growth rate differences, and secondly, the limits to growth in a closed economy (including the world economy). The distinctive feature of all his writing in this field was his insistence on the importance of taking a sectoral approach, distinguishing particularly between increasing returns activities on the one hand, largely a characteristic of manufacturing, and diminishing returns activities on the other (namely agriculture and many service activities). Kaldor's name is associated with three growth 'laws' which have become the subject of extensive debate.[73] The first 'law' is that manufacturing industry is the engine of growth. The second 'law' is that manufacturing growth induces productivity growth in manufacturing through static and dynamic returns to scale (also known as Verdoorn's Law). The third 'law' states that manufacturing growth induces productivity growth outside manufacturing, by absorbing idle or low productivity resources in other sectors. The growth of manufacturing itself is determined by the growth of demand, which must come from agriculture in the early stages of development, and from exports in the later stages. Kaldor's original view[74] was that Britain's growth rate was constrained by a shortage of labour, but he soon changed his mind in favour of the dynamic Harrod trade multiplier hypothesis of a slow rate of growth of exports in relation to the income elasticity of demand for imports, the ratio of which determines a country's balance of payments constrained growth rate. Because fast growing 'regions' automatically become more competitive *vis à vis* slow growing regions, through the operation of the second 'law', Kaldor believed that growth will tend to be a cumulative disequilibrium process—or what Myrdal once called a 'process of

[73] See A. P. Thirlwall (ed.), 'Symposium on Kaldor's Growth Laws', *Journal of Post-Keynesian Economics*, Spring 1983.

[74] See *Causes of the Slow Rate of Economic Growth of the United Kingdom* (CUP, 1966).

circular and cumulative causation',—in which success breeds success and failure breeds failure. He articulated these ideas in several places, most notably in two lectures: his Inaugural Lecture at Cambridge in 1966,[75] and in the Frank Pierce Memorial Lectures at Cornell University in the same year.[76] Most of the debate concerning Kaldor's growth laws has centred on Verdoorn's Law and the existence of increasing returns. Kaldor drew inspiration for the theory from his early teacher, Allyn Young, and his neglected paper 'Increasing Returns and Economic Progress'.[77] Young, in turn, derived his inspiration from Adam Smith's famous dictum that productivity depends on the division of labour, and the division of labour depends on the size of the market. As the market expands, productivity increases, which in turn enlarges the size of the market. As Young wrote 'change becomes progressive and propagates itself in a cumulative way', provided demand and supply are elastic. Hence increasing returns is as much a macro-economic phenomenon as a micro-phenomenon, which is related to the interaction between activities, and cannot be adequately discerned or measured by the observation of individual industries or plants. Kaldor was convinced by theoretical considerations and by his own research, and that of others, that manufacturing is different from agriculture and most service activities in its ability to generate increasing return in the Young sense.

The difference in the laws of production governing the output of manufactured goods and primary products, and the different conditions under which manufactured goods and primary products are priced and marketed, also lay at the heart of his two-sector model of economic development, in which the ultimate constraint on the growth of a closed economic system is the rate of land-saving innovations in agriculture (or more generally land-based activities) as an offset to diminishing returns.[78] Within a framework of reciprocal demand, the growth of industry and agriculture must be in a particular relationship to

[75] As note 74.

[76] *Strategic Factors in Economic Development* (Cornell University, Ithaca, New York, 1967).

[77] *Economic Journal*, December 1928.

[78] E.g. see his paper 'Equilibrium Theory and Growth Theory' in M. Boskin (ed.), *Economics and Human Welfare: Essays in Honour of Tibor Scitovsky* (Academic Press, 1979). For a formalization of the model see A. P. Thirlwall, 'A General Model of Growth and Development on Kaldorian Lines', *Oxford Economic Papers*, July 1986.

each other, and it is the function of the terms of trade to equilibrate supply and demand in both markets for growth to be maximized. In practice, the industrial terms of trade may be 'too high' or 'too low', in which case industrial growth becomes either demand-constrained or supply-constrained. Kaldor was highly critical of neo-classical development theory with its emphasis on allocation and substitution to the neglect of the complementarity between activities, with its prediction that long-run growth is determined by an exogenously given rate of growth of the labour force in efficiency units. He was equally critical of classical development theory with its focus on the supply side of the economy to the neglect of demand. Keynes undermined Say's Law at the aggregate level. Kaldor showed that Say's Law is equally invalid at the sectoral level because there is a minimum below which the industrial terms of trade cannot fall, set by the minimum subsistence wage in industry.

Like Keynes, Kaldor believed that the uncontrolled movement of primary product prices was a major source of instability in the world economy, and that some intervention was desirable. This was the theme of his Presidential Address to the Royal Economic Society in 1976,[79] but he had addressed the issue before. He foresaw the collapse of the Bretton Woods system based on the US dollar as the key currency, and in 1964 he had prepared a Report for UNCTAD,[80] proposing an international commodity reserve currency, backed by thirty commodities, which would replace the dollar and anchor the price level at the same time. The Report received short shrift, but he never altered his view that such a scheme was desirable. After the introduction of Special Drawing Rights (SDRs) in 1970, he recommended the use of SDRs to finance buffer stocks of key commodities on lines similar to Keynes's Commod Control[81] scheme proposed at the time of Bretton Woods, but never adopted.

Adviser to Labour Governments 1964–70 and 1974–6

When the Labour Party assumed office in 1964, Kaldor was the

[79] 'Inflation and Recession in the World Economy', *Economic Journal*, December 1976.

[80] *The Case for an International Commodity Reserve Currency* (with A. Hart and J. Tinbergen) (UNCTAD, Geneva, 1964).

[81] See D. Moggridge (ed.), *The Collected Writings of John Maynard Keynes*, Vol. xxvii, *Activities 1940–1946, Shaping the Post-War World: Employment and Commodities* (London: Macmillan, 1980).

natural choice of adviser to the Chancellor of the Exchequer. Hugh Gaitskell, who died in 1963, had promised him such a position if and when Labour was returned to power, and James Callaghan kept the pledge, appointing him as Special Adviser on the Social and Economic Aspects of Taxation Policy. His friend, Robert Neild, replaced Alec Cairncross as Chief Economic Adviser to the Treasury, and his Hungarian compatriot, Thomas Balogh, was appointed as adviser to the Prime Minister, Harold Wilson. The appointment of two Hungarians to influential positions in the machinery of government provoked a hostile reaction in the press, as if a sinister eastern European plot was about to be launched on the British people. Kaldor was portrayed as a tax ogre intent on squeezing the rich. The Labour government inherited a serious balance of payments deficit, and the immediate question was whether sterling should be devalued. Kaldor favoured some form of flexible exchange rate, but Wilson and other influential members of the Cabinet were against any form of exchange depreciation, hoping that a combination of controls and improved industrial efficiency would bring the balance of payments back into the black. As so many times in the past, deflation was eventually resorted to as a substitute for devaluation. Robert Neild was disillusioned and resigned his post. Callaghan approached Kaldor to take the job as Chief Economic Adviser to the Treasury, but he, too, was out of sympathy with the emphasis on deflation. When the government had no option but to devalue in November 1967, Callaghan resigned, and Roy Jenkins became Chancellor. Kaldor stayed on as Special Adviser, but Jenkins distanced himself from him, and in September 1968 Kaldor decided to return to Cambridge full time, staying on in the Treasury as an unpaid consultant and working with research assistants on several research projects including the relationship between budget deficits and the balance of payments (the 'New Cambridge' theory), and the relationship between employment, output, and productivity growth, pursuing the ideas put forward in his Inaugural Lecture. In November 1969 he returned to office as Special Adviser to Richard Crossman at the Department of Health and Social Security, where he was responsible, amongst other things, for persuading the government to increase family allowances substantially but at the same time to 'claw back' some of the increase through the tax system—benefiting the poor at the expense of the rich.

As Special Adviser to the Chancellor, Kaldor exerted a

considerable influence on tax policy. In the Inland Revenue, where he was first based, he enjoyed a good working relationship with the Head, Alexander Johnston, and with most of the civil servants. Sir Douglas Wass, later Permanent Secretary to the Treasury, has described him as 'the only economic adviser to Government that I have worked with who studied the administrative system and sought to fashion his ideas to what the system could bear'.[82] Understanding the art of the possible, he never pressed hard for a wealth tax, and never mentioned the introduction of an expenditure tax. He was heavily involved, however, with the introduction and implementation in 1965 of the new capital gains and corporation tax, and with several other new tax initiatives. To encourage investment, particularly in depressed regions, he was instrumental in the replacement of investment allowances by investment grants differentiated regionally, and he played a major part in plugging various tax loopholes to reduce avoidance and evasion. He will be best remembered, however, as the inventor of the Selective Employment Tax, to encourage the diversion of resources from services to manufacturing activity, coupled with the Regional Employment Premium to give an extra boost to manufacturing employment growth in depressed regions. The inspiration for the Selective Employment Tax was based on the theory that manufacturing output growth was constrained by a shortage of labour, and that a tax on labour in services would not be passed on to the consumer in the form of higher prices but be paid for either out of profits or increased productivity. It turned out to be an ideal tax: it raised substantial revenue for the Exchequer, at no 'cost' to the consumer as predicted. It is hard to show that manufacturing output at the time was constrained by a shortage of labour, but productivity in services improved substantially.

Even as a Special Adviser to the Chancellor, he continued to travel widely giving lectures and seminars, and advising foreign governments in an unofficial capacity. In the summer of 1967 he toured four countries, giving his first lecture in Russia; delivering several lectures in Japan; advising the Indian Planning Commission on the budgetary implications of the Fourth Five Year Plan; and holding talks with officials of the Central Bank of Israel.

While in office, Kaldor was prevented from pronouncing publicly on topical matters of the day. Out of office in 1970 he

[82] See the Foreword to my book, *Nicholas Kaldor* (Brighton: Wheatsheaf Books Ltd., 1987).

took full advantage of his freedom with a flood of newspaper letters and articles on a whole variety of subjects. He was highly critical of Conservative economic policy between 1970 and 1974—its monetary profligacy, and its encouragement of consumption to the neglect of the foreign trade sector. He also became heavily embroiled in the Common Market debate, and became the foremost academic critic of Britain's entry on the proposed terms. Armed with statistical ammunition on the 'true' costs of entry, and with his theory of circular and cumulative causation, he warned that Britain could become 'the Northern Ireland of Europe'. The Common Agricultural Policy (CAP) came in for particular attack, but his most devastating critique was contained in a *New Statesman* article 'The Truth about the "Dynamic Effects"',[83] in which he showed the balance of payments costs of entry to be close to one billion pounds, and argued that if deflation is necessary to pay for these costs, the assumed dynamic effects of entry will be negative. Many of Kaldor's prognostications on the costs and consequences of EEC entry have materialized. CAP has absorbed more and more of the Community's resources; Britain's budgetary contribution has been massive, and the balance of payments costs have contributed to the destruction of large sections of manufacturing industry. The dynamic benefits of entry promised by the 1970 White Paper have proved to be illusory.[84]

When the Labour government was returned to power in 1974, Kaldor resumed the role of Special Adviser to the Chancellor, this time to Denis Healey. Once again, the Conservative legacy was a severe balance of payments crisis. Since the floating of the pound in 1972, Kaldor had become sceptical of the efficacy of exchange rate changes as a means of reconciling internal and external balance (one of the few major issues on which he changed his mind), and he campaigned instead for various forms of import controls. Without some form of action, other than exchange rate depreciation, he forecast an 'IMF budget', and this is exactly what transpired in 1976. As far as the broad thrust of economic policy is concerned, Kaldor's influence on Healey was minimal. Disillusioned, he resigned his post in the summer of 1976, and took his seat in the House of Lords. He was, however, responsible for two major tax initiatives: firstly, stock apprecia-

[83] 12 March 1971.

[84] *Britain and the European Communities: An Economic Assessment*, Cmnd. 4289 (London: HMSO).

tion tax relief which saved several companies from bankruptcy, and secondly capital transfer tax to replace death duties (including unrealized capital gains on death).

Monetarism

The 1960s witnessed the recrudescence of interest in the doctrine of the Quantity Theory of Money which lay at the heart of what came to be called 'monetarism' and which spread like a plague from the United States to infect susceptible academic communities and eventually the conduct of economic policy in several countries. Its appeal was deceptively attractive. Through control of the money supply it promised a reduction in inflation with hardly any loss of output or employment and without having to talk to the trade unions. Kaldor led the intellectual assault against monetarism, in both the UK and abroad, describing the doctrine as 'a terrible curse' ... 'a visitation of evil spirits' ... 'a euphemism for deflation'. His view of monetarism was reminiscent of what Keynes felt about economic policy in the 1920s when in attacking the return to the gold standard in 1925 at the pre-war parity, he described monetary policy as 'simply a campaign against the standard of life of the working classes', operating through the 'deliberate intensification of unemployment—by using the weapon of economic necessity against individuals and against particular industries—a policy which the country would never permit if it knew what was being done'.[85]

Kaldor was not a monetary economist in the sense of Keynes or Robertson. Monetary analysis did not infuse the major part of his work. He was, however, a powerful witness before the Radcliffe Committee on the Working of the Monetary System which reported in 1959; and, as Harrod noted in a review of Kaldor's *Collected Essays*,[86] the Committee's conclusions seemed to reflect Kaldor's evidence, namely that monetary policy is an uncertain instrument of economic policy on account of changes in the velocity of circulation of money and the insensitivity of expenditure to changes in the rate of interest. Kaldor fully concurred with the Committee's attack on the mechanistic Quantity Theory of Money, although, in his own review of the Report, he regretted that it failed to probe more fully into the

[85] J. M. Keynes, *The Economic Consequences of Mr Churchill* (Hogarth Press, 1925).

[86] *Economic Journal*, December 1965.

reasons for the behaviour of monetary velocity.[87] Like Keynes, he believed that prices could rise quite independently of prior increases in the money supply, resulting from wage (and other cost) increases. His explanation of the Phillips curve, however, was a profits-based theory of wage increases,[88] which he later turned into a productivity-based theory of wage determination arising from leading sectors in the economy.

Kaldor's first major attack on the doctrine of monetarism was in a lecture at University College London, in 1970, directed at Milton Friedman, the undisputed father of modern monetarism.[89] During the 1970s and 1980s, during which his intellectual assault became a crusade, there followed a series of other lectures, including the Page Lecture at Cardiff University, 1980;[90] the Radcliffe Lectures at Warwick University, 1981; The Chintaman Deshmukh Memorial Lecture at the Reserve Bank of India, 1984,[91] and culminating in his magnificent polemic *The Scourge of Monetarism*,[92] reminiscent in style, topicality and pungency of Keynes's *Economic Consequences of the Peace*. This volume contains his masterly Memorandum of Evidence on Monetary Policy to the Select Committee on the Treasury and Civil Service 1980, brilliant for its marshalling of the theory and facts relating to the core propositions of monetarism.

The key propositions of monetarism which formed the basis of the application of monetarism in the UK, and which Kaldor attacked, were as follows. First that the stock of money determines money income. This has at least two important corollaries: that the money supply is exogenously determined, and that the demand for money is a stable function of money income. Secondly, that government borrowing is a major source of increases in the money supply. Thirdly, that government spending crowds out private spending, making government stabilization policy redundant, and fourthly there is, in any case, a natural rate of unemployment, and if governments try to reduce unemployment below the natural rate, there will be ever-accelerating inflation. Kaldor found all three propositions wanting, either theoretically or empirically. He was adamant that there is

[87] 'The Radcliffe Report', *Review of Economics and Statistics*, February 1960.

[88] 'Economic Growth and the Problems of Inflation' Parts I and II, *Economica*, August and November 1959.

[89] 'The New Monetarism', *Lloyds Bank Review*, July 1970.

[90] *Origins of the New Monetarism* (University College Cardiff Press, 1981).

[91] *The Failures of Monetarism*.

[92] (OUP, 1st edn., 1982; 2nd edn., 1986).

a fundamental difference between commodity-backed money and credit money, and that in a credit economy, such as advanced capitalist economies, it can never be true to say that expenditure rises *because* of an increase in bank money held by the public since credit money only comes into existence because it is demanded. Money is endogenous, not exogenous. Thus changes in the supply of money must be regarded as the consequence of changes in money income not the cause. The endogenous nature of money also accounts for studies that find the demand for money to be a stable function of money income. Indeed, contrary to the monetarist proposition that stability is evidence of the potency of monetary policy, for Kaldor it was precisely the opposite, i.e., that supply responds to demand and proves the impotence of monetary policy. Friedman's initial retort to Kaldor was: 'if the relation between money and income is a supply response . . . how is it that major differences among countries and periods in monetary institutions and other factors affecting the supply of money do not produce widely different relations between money and income?'[93] The short answer is that they do, which Kaldor amply demonstrated in his evidence to the Treasury Select Committee of 1980.

Whether government borrowing is a major source of monetary expansion is essentially an empirical question. Kaldor showed for the UK that between 1968 and 1979 there was no relation between the size of the Public Sector Borrowing Requirement (PSBR) and the growth of broad money (M_3). Changes in the money supply were dominated by bank lending to the private sector which is demand-determined.

Whether government spending crowds out private spending is also an empirical matter. If there exist unemployed resources, there cannot be resource crowding out. Indeed there should be crowding in through the Keynes multiplier. Financial crowding out owing to higher interest rates to finance government deficits is a possibility, but not inevitable. Higher interest rates may not be necessary and, even if they are, private expenditure may be relatively insensitive. Kaldor found no evidence for the UK that a higher PSBR required ever-rising interest rates.

Kaldor dismissed the concept of the natural rate of unemployment, based as it is on the classical labour market assumptions of diminishing returns to labour and that workers are always on

[93] M. Friedman, 'The New Monetarism: Comment', *Lloyds Bank Review*, October 1970.

their supply curve, ruling out the possibility of involuntary unemployment, and was contemptuous of the doctrine of 'rational' expectations: 'the rational expectations theory goes beyond the untestable basic axioms of the theory of value, such as the utility-maximising rational man whose existence can be confirmed only by individual introspection. The assumption of rational expectations which presupposes the correct understanding of the workings of the economy by all economic agents—the trade unionists, the ordinary employer, or even the ordinary housewife—to a degree which is beyond the grasp of professional economists is not science, nor even moral philosophy, but at best a branch of metaphysics.'[94]

The challenge to equilibrium theory

No account of Kaldor's life and work would be complete without more detailed reference to his challenge to neo-classical value theory (or what he called equilibrium theory), which preoccupied him in later life and which will remain one of his lasting memorials. Few economists are willing or able to attack orthodoxy from within, but Kaldor had the courage and tenacity to do so in a remarkable set of lectures and papers. It was not the concept of equilibrium that he objected to, but the formulation of economic theory within an equilibrium framework and neo-classical modes of thinking with their static emphasis on the allocation and substitution role of the price system to the neglect of the dynamic process of growth and change based on increasing returns. His complaint, also shared by Kornai,[95] was quite simply that the framework of competitive equilibrium, within which so much contemporary economic theory is cast, is barren and irrelevant as an apparatus of thought for an understanding of how capitalist industrial economies function in practice. His war of words with the neo-classical school started in 1966 with his response to Samuelson and Modigliani[96] in which he declared: 'it is high time that the brilliant minds of MIT were set to evolve a system of non-Euclidean economics which starts from a non-perfect, non-profit maximising economy where ... [neoclassical,

[94] 'A Keynesian Perspective on Money' (with J. Trevithick), *Lloyds Bank Review*, January 1981.

[95] J. Kornai, *Anti-Equilibrium: On Economic Systems Theory and the Tasks of Research* (Amsterdam: North Holland, 1971).

[96] Op. cit.

general equilibrium] abstractions are initially unnecessary.' His assault gathered momentum in the 1970s with provocative essays on 'The Irrelevance of Equilibrium Economics'[97] and 'What is Wrong with Economic Theory',[98] and culminated in his 1983 Okun Memorial Lectures on *Economics Without Equilibrium*,[99] and his 1984 Mattioli Lectures on *Causes of Growth and Stagnation in the World Economy*. There were three major strands to his critique of equilibrium theory. The first was methodological; the second concerned the lack of realism about the way markets function in practice; and the third related to the implications of the neglect of increasing returns.

At the methodological level, Kaldor was strongly against the deductive method of building models on *a priori* assumptions without any firm empirical basis. For models to be useful, the assumptions must be verifiable, not axiomatic—which makes theories tautological. Many of the assumptions of equilibrium theory, e.g. non-increasing returns, optimizing behaviour, perfect competition etc., are either empirically false or unverifiable. The methodological critique paralleled the disquiet that many economists had been expressing for a long time concerning the use of mathematics in economics, which, for the sake of scientific precision, invariably substitutes elegance for relevance.

Kaldor's second major objection to neo-classical equilibrium theory was its emphasis on the principle of substitution and on the allocative function of markets to the neglect of the creative function of markets and the complementarity between activities. Complementarity, rather than substitution, is much more important in the real world—between factors of production, such as capital and labour, and between activities such as agriculture and industry or industry and services. Static neo-classical analysis is dominated by the idea that one thing must always be at the expense of something else—a 'tangential' economics as Allyn Young once described it; yet there are a variety of mechanisms whereby the expansion of activities can take place simultaneously. It is equally misleading to think of the market as simply a mechanism for the allocation of resources. Much more important is the role of markets in transmitting the impulses for change when tastes, technology, and factor endowments are constantly changing. Nor are market prices the *deus ex machina* by

[97] *Economic Journal*, December 1972.
[98] *Quarterly Journal of Economics*, August 1975.
[99] (University College Cardiff Press, 1985.)

which decentralized market economies function in the real world. Equally important are quantity signals. Loyalty, custom, goodwill, and other intangible relations play an important part in market transactions, the more so where the product is not homogeneous and producers are price makers. In these markets prices are also relatively sticky, determined by costs plus a mark-up, and notions of fairness and goodwill stop prices from being adjusted to take advantage of (temporary) conditions of excess demand.

Finally there is the problem for equilibrium theory of increasing returns. Marshall, Sraffa, Hicks, among the great economists, all recognized the difficulty. Competitive equilibrium requires perfect competition which is impossible if long-run marginal cost is below price. Hicks admitted in *Value and Capital* (1939): 'unless we can suppose that marginal costs generally increase with output at the point of equilibrium ... the basis on which economic laws can be constructed is shorn away.' The evidence for increasing returns in manufacturing industry is overwhelming from empirically estimated production functions; from Verdoorn's Law; from the very existence of oligopolies and monopolies; and from the fact that although the capital–labour ratio differs between countries, the capital–output ratios of countries are very similar. Increasing returns, based on the division of labour, lay at the heart of Adam Smith's vision of economic progress as a self-generating process, and Kaldor used to joke that economics went wrong from Chapter 4, Book I, of the *Wealth of Nations*, when Smith dropped the assumption of increasing returns. The concept lay dormant until Allyn Young revived it in 1928.[100] In the meantime, however, the damage was done; the foundations of neo-classical value theory were laid. Kaldor kept harping back to Young's paper. The implications and consequences of increasing returns for how economic processes are viewed are indeed profound and far-reaching. First, what is the meaning of 'general equilibrium', if increasing returns cause everything in the equilibrium system to change—resource availabilities, technology, tastes, prices, and so on? Secondly, once increasing returns are admitted, the concept of an optimum allocation of resources loses its meaning since the position of the production possibility curve itself depends on how resources are allocated. Thirdly, increasing returns undermine the notion that at any moment of time, output must be resource

[100] 'Increasing Returns and Economic Progress', *Economic Journal*, December 1928.

constrained. Finally, if supply and demand interact in the presence of increasing returns, in the manner described by Young, many of the treasured theorems of equilibrium economics become untenable. There is no reason why free trade should equalize factor prices; there is no reason why factor migration should equalize unemployment between regions; and there is no reason why growth rates between countries and between regions should converge.

Kaldor admitted that as a young man he was caught in the equilibrium trap, but he did eventually escape. In his own recollections as an economist[101] he confesses: 'most of my early papers were based on the deductive *a priori* method and concentrated on unresolved inconsistencies of general equilibrium theory but without questioning the fundamentals ... Such was the hypnotic power of Walras's system of equations that it took me a long time to grasp that this method of making an abstract model still more abstract by discovering unsuspected assumptions implied by the results is an unscientific procedure that leads nowhere. ... It was a long journey.'

Conclusion

Kaldor was one of the most original, inspiring and controversial economists of his day; a unique figure in twentieth-century economics. His many contributions to economic theory and applied analysis will ensure his place in the history of economic thought. It is perhaps a matter for regret that he never wrote a grand Treatise in the tradition of Smith, Mill, Ricardo, Marx, or Marshall. The reason he did not do so was not because he lacked the vision, intellect, or ability to write, but because he succumbed to the temptation to become involved in too many projects at the same time, and never found the time to sit down for long concentrated periods which such a *magnum opus* requires. His eight volumes of *Collected Essays* are some substitute, however; they give a coherence to his work, and provide a lasting monument to his energy, creativity, and endeavour. At his Memorial Service in King's College Chapel on 17 January 1987, there were over 400 people in attendance from all walks of life including one Prime Minister, ambassadors, civil servants, politicians, and economists from all over the world. This is some measure of the affection and esteem in which he was held.

A. P. THIRLWALL

[101] 'Recollections of an Economist', *Banca Nazionale del Lavoro Quarterly Review*, March 1986.

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